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Food, Rural Land Use & the Agricultural Economy

Prepared for

The Regional Chairman's Task Force on
Sustainable Development

by

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1. Introduction:

To get a better understanding of the importance of protecting the world's land resources which are the only source for food to feed the billions of inhabitants of this planet, imagine the earth as an apple. Slice the apple into 32 pieces and throw away 31 of these pieces which will reflect the areas which are not suitable to be farmed (i.e. oceans, polar areas, deserts, swamps, mountains, areas too rocky, wet, cold, or with poor quality soils, as well as urban areas). If the remaining 1/32nd slice is peeled, that tiny bit of peeling represents the only portion of the earth, usually less than 5 feet in depth where food can be produced. This gives some perspective to the magnitude of the problem of protecting and preserving agricultural lands to ensure food supplies for future generations.

In Canada, our portion of the "apple peel" consists of about 5% of Canada's land area (Farmland Under Seige -Rural Learning Association of Ontario) and only 8% of Ontario is made up of high quality agricultural lands (approximately 13.9 million acres in 1986) (D. Douglas, University of Guelph, 1990). These prime food producing lands, as well as the food producers, are being subjected to increased pressures creating an agricultural crisis placing many farmers and the farming community in general in a precarious situation. The depletion of the land base (conversion to urban uses), cheap food policies, competition among rural land uses, financial problems, changing consumer trends and environmental concerns, are only a few of the difficulties which confront the modern farmer in our country.

The significance of this crisis is accentuated because of the importance of agriculture to the economic stability of this country, province and region. To illustrate the importance of agriculture it should be pointed out that:

- approximately 12% of Canada's labour force is involved in the agriculture and food system (Farmland Under Seige)
- Canada's farm cash receipts total \$22.5 billion
- Ontario's farm cash receipts total \$5.6 billion annually
- \$2.1 billion worth of Ontario produce is exported each year. (D. Douglas, University of Guelph, 1990)
- the Capital Value of farms (land, buildings, equipment and livestock) in Ontario 1986 was approximately \$23.7 billion. (Country at a Glance, H-W, OMAF, 1989)

- farmers bolster local economies by spending millions of dollars annually for services such as building supplies, farm equipment, feed, seeds, fertilizers and veterinarian, financial and legal services.

If the economic benefits of farming are to be maintained and strengthened the land base must be secured. As stated in Ontario's Food Land Guidelines;

"To help ensure a healthy and productive agricultural industry in the future we must protect a land area which will be available on a long term basis and within which agricultural activity can occur with a minimum of disruption from competing or non-compatible land uses. This situation

provides the long-term security that is essential to continued agricultural production."

The Food Land Guidelines (first released in 1978) along with the Provincial Planning Act, Regional and Area Municipal Official Plans and zoning by-laws provide the policy framework and the practical tools to control and regulate rural land use in the Province of Ontario.

The Planning Act sets out regulations to guarantee public rights, areas of provincial interest, standards for the preparation of official plans and zoning by-laws, planning processes to be followed and appeal procedures. All of these elements can impact on rural land use patterns.

The Food Land Guidelines is a provincial policy statement which through policies and standards attempts to protect high quality agricultural lands (Classes 1 - 4) for future food production.

The Regional and Area Municipal Official Plans establish, among other things, detailed policies and guidelines to provide an orderly and efficient rural land use pattern which enhances a healthy agricultural economy.

The policies and regulations outlined in these documents relate mainly to control of land use. While this is an important aspect of agricultural vitality, other factors such as environmental issues, farm viability, agricultural trends, sustainable agricultural activities and initiatives in agriculture are also significant and will be addressed in this discussion paper, specifically as they affect agriculture and food production in the Region of Hamilton-Wentworth.

2. Agriculture in Hamilton-Wentworth

2.1 Basis of Production

While Hamilton-Wentworth is an integral part of the urban area bordering the south-west corner of Lake Ontario, it also has an extensive agricultural land area based on favourable climatic and soil conditions. The moderating effects of the lake are beneficial to the crops being grown in this region and are specifically essential to the fruit production operations located north and south of the Niagara Escarpment. Soil is the other critical element in food production and Hamilton-Wentworth contains extensive areas of high quality agricultural soils. The type of soil varies greatly throughout the Region from heavy clay soils (imperfectly drained) in the Vinemount area of Stoney Creek, across Glanbrook and Ancaster with deep, fairly well drained loam which become sandier in Flamborough. North of Highway #5 in Flamborough the sandy soils are very shallow and stony and in northern Flamborough the bedrock approaches the surface resulting in poor soil conditions with little top soil, creating hazards for farm equipment.

In terms of soil capabilities for agriculture the Canada Land Inventory has established a recognized classification system. The seven soil classes are rated from Classes 1, 2, 3 and 4 which can accommodate common field crops and are generally referred to as 'prime agricultural lands', to Class 5 and 6 which are usually only suitable for hay and pasture and Class 7 which have no capability for agriculture. It is interesting to note that 37%

of Canada's Class 1 soils are situated in Southern Ontario within 160 km. of Toronto (Farmland Under Seige -Urbanization). Hamilton-Wentworth has a substantial amount of these prime agricultural lands which facilitate a significant agricultural economy.

2.2 Statistics

Ontario produces 25% of the total value of Canadian farm production and 10 counties and regions in Southern Ontario (including Hamilton-Wentworth) dominate the provincial production (Sustainable Development in Agriculture, H-W Federation of Agriculture). The key indicators of agricultural production in Hamilton-Wentworth are outlined in Figure 1.

Some of the major production areas, which generate farm cash receipts of about \$113.8 million annually are 27,000 acres of hay accounting for 1% of the provincial total, 24,000 acres of grain corn (1.38%), 11,000 acres of winter wheat (1.59%), 7,000 acres of vegetables (9.27%), 4,200 acres of fruit (5.14%), as well as livestock which account for between 0.86% (cattle) and 2.59% (sheep) of the provincial totals. For Hamilton-Wentworth the percentage of cash receipts by the various agricultural commodities are shown on Figure 1 with the top four individual production areas being floriculture/nursery (25%), poultry (21%), dairy (11.7%) and vegetables (11.5%). Green house production involves over 2 million square feet, with nearly half of this area devoted to mushroom houses.

The statistics which are available do not make it possible to determine the proportion of agricultural produce that is grown locally but it is interesting to note the 1991 figures for the 150 year old Hamilton Farmers Market. This historic market place caters to 30,000 - 40,000 customers every week. The 85 stall-holders consist of 53 dealers who purchase produce from the Toronto Food Terminal in the winter months and from local producers throughout the summer. The other 32 stall-holders are producers who sell local produce year round. A total of 90% of the stall-holders reside in Hamilton-Wentworth while the remainder come from surrounding areas. Accurate statistics are not available regarding the amount of produce sold at the market but 90% of the produce sold during the growing season (June - October) is locally grown, while 75% of produce sold in the winter season (November - May) is imported. When it is available, it appears that a substantial amount of local produce is offered to the consumer through the farmer's market and it may be appropriate to promote existing markets and to encourage the creation of new markets to provide increased opportunities for the sale of produce grown in Hamilton-Wentworth.

2.3 The Agricultural Process

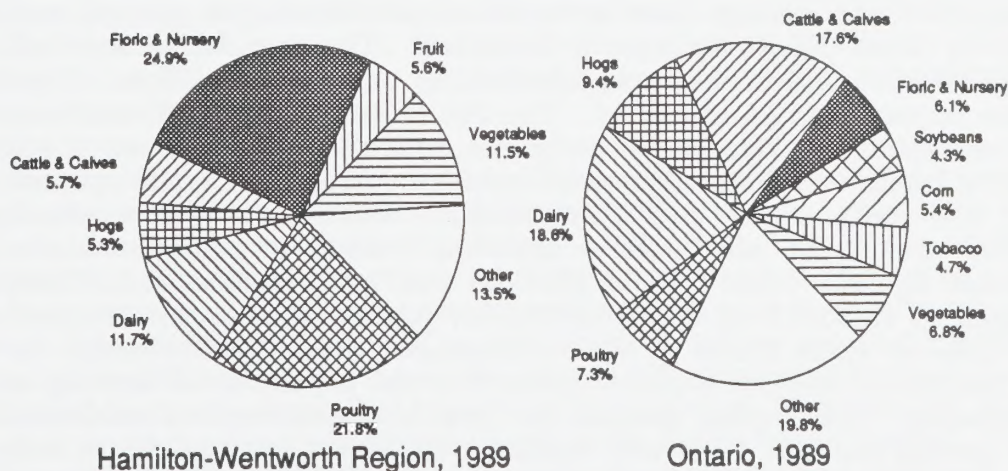
Agricultural production from the Region's 104,972 acres of cropland (1986) (Figure 1) covers a wide range of commodities. These crops are grown throughout the Region on a variety of soils and on farms varying in size from small fruit and vegetable plots to extensive operations consisting of many hundreds of acres. The larger farms tend to be automated, mechanized operations with significant investments in farm equipment and buildings while the small intensive operations rely heavily on labour input either by the individual farmer or hired help. Various forms of specialized agriculture such as

hydroponic vegetable growing, bee keepers, intensive greenhouse operations, horse breeders, rabbit farms and others, have been established in the Region.

COUNTY AT A GLANCE, 1989: HAMILTON-WENTWORTH FIGURE 1

ITEM	HAMILTON- WENTWORTH	PROVINCE	% OF PROVINCE	ITEM	HAMILTON- WENTWORTH	PROVINCE	% OF PROVINCE
CENSUS POPULATION				NUMBER OF CENSUS FARMS			
farm population	4,235	232,785	1.82	total number	1,393	72,713	1.92
rural non-farm population	33,285	1,399,485	2.38	no. with sales > \$2,500	1,136	63,253	1.80
total population	423,400	9,101,695	4.65	no. with sales > \$25,000	603	35,923	1.68
MAJOR FARM TYPES(with sales over \$2,500)				no. under 130 acres	1,057	36,480	2.90
total farms	1,136	63,253	1.80	no. from 130 to 400 acres	280	28,303	0.99
cattle	168	17,160	0.98	no. over 400 acres	58	7,930	0.71
dairy	135	11,028	1.22	no. reporting off-farm work	614	31,976	1.92
hogs	78	4,840	1.81	LIVESTOCK ON FARMS, JULY 1(no. of head)			
poultry	71	1,843	4.32	total pigs	35,200	3,230,000	1.09
field crops	202	18,414	1.23	sheep & lambs	5,500	212,000	2.59
fruits & vegetable	215	4,089	5.26	dairy cows	5,100	455,000	1.12
mixed other	267	8,079	3.30	beef cows	2,600	360,000	0.72
TOTAL AREA ON FARMS(acres)				steers	1,000	325,000	0.31
total area	145,083	13,953,009	1.04	total cattle & calves	19,400	2,250,000	0.86
cropland	104,972	8,544,820	1.23	MILK SHIPMENTS(kilolitres)			
winter wheat	11,000	690,000	1.59	total	26,491	2,337,134	1.13
oats for grain	3,800	360,000	1.06	CAPITAL VALUE(\$ million)			
barley for grain	6,200	480,000	1.29	land & buildings	392	17,972	2.18
grain corn	24,000	1,740,000	1.38	machinery & equipment	61	3,696	1.65
silage corn	4,000	375,000	1.07	livestock & poultry	23	2,069	1.11
soybeans	8,000	1,290,000	0.82	total	476	23,737	2.01
dry wheat beans	na	120,000	na	FARM CASH RECEIPTS(\$ million)			
flue-cured tobacco	na	67,000	na	total	113.8	5,662.80	2.01
hay	27,000	2,570,000	1.05				
fruit	4,211	81,886	5.14				
vegetables(excluding potatoes)	5,065	153,062	3.31				
potatoes	1,948	32,670	5.98				
improved pasture	5,500	1,080,000	0.51				

Cash Receipts by Commodity



Once the crops, livestock or produce is ready for sale the farmer must follow certain processes to market his or her specific commodity. In Ontario, generally, farmers operate under the free-enterprise system but in certain commodities marketing regulations are set in Provincial legislation. A series of Marketing Boards have been established which exert various degrees of control over Pork, Dairy, Poultry (broilers and eggs), Tender Fruit and other small producers. These Boards operate under different formats. For example, the Pork Producers Marketing Board (P.P.M.B.) consists of a central selling desk in Toronto through which all sales are coordinated. Farmers deliver to P.P.M.B. owned and operated assembly points, from which the hogs are shipped to the processors. The Dairy and Poultry Marketing Board operate on a supply management basis whereby quotas are bought by the farmers which allow them to produce a certain amount of milk or a given number of chickens or eggs. The farm can produce between 85% and 105% of that quota without penalty; but loss of quota or fines can be levied if these percentages are not met or exceeded. Pricing systems are also implemented through these Boards. The prices for each commodity are established by formula and through consultation between the Board and processors.

Other forms of agriculture function on the open market or through federal boards (Federal Wheat Board). Beef producers and many cash crop producers (corn, soya beans, barely) sell directly to processors or to elevator/feed mills which further process the produce.

3. Rural Land Use

3.1 Types and Extent of Competing Land Uses

The rural landscape does not consist exclusively of agricultural uses. Increasingly, non-agricultural uses are competing for the limited amount of agricultural land remaining in this province and region. Between 1971 and 1986 in Ontario, the amount of farmland has decreased by 14% from 15.9 million acres to 13.9 million acres (D. Douglas, University of Guelph), and in Hamilton-Wentworth since 1956 the 170,000 acres of farmland has been reduced by approximately 50,000 acres, (H-W Federation of Agriculture). Today in this Region, farms include 145,000 acres of land, out of which about 105,000 acres are currently under production (Figure 1). The percentage loss of farmland between 1981 and 1986 amounted to -8.48% (State of the Environment Report, H-W, 1990).

The extent of the damage done to farmland and farming in general cannot be assessed strictly in terms of lost acreages of farmland. The cumulative and indirect impacts of non-agricultural uses in the rural area greatly intensify the effects. However, the source of these impacts can be identified. The list of competing rural land uses would include rural residential development (by severance, settlement development or estate subdivision) industrial/commercial uses, aggregates industry, recreational activities such as golf courses, parks, and clubs, utility and transportation corridors and other non-farm operations. Probably one of the most telling statistics related to rural land use involves rural population figures. From 1981 to 1986 the total rural population in Hamilton-Wentworth increased by +3.85% from 36,110 to 37,500, yet the farm population declined by -14.27% from 4,940 to 4,235 (State of the Environment Report). Obviously, the demand for a rural residential lifestyle remains strong but the popularity of farming as an occupation is decreasing. The ongoing demand for rural land goes beyond residential use and many other non-agricultural uses are seeking rural locations mainly to take advantage of inexpensive rural land. Land extensive uses are not only attracted by reduced land costs but also obtain the benefits of lower taxes, decreased servicing costs, cleaner environment

and in some cases transportation advantages. All of these factors have resulted in a proliferation of non-farm rural development.

3.2 Identification of Conflicts with Agriculture

Besides the loss of agricultural land to other rural land uses, conflicts between these uses and agricultural operations also severely affect farming operations and food production. These conflicts can have direct and indirect implications on agriculture. The most frequent form of conflict is the impact of residential development on agriculture where complaints about farming operations range from odour, noise, dust, spraying, loss or contamination of ground water, hours of operation and environmental concerns related to farm practices. Approximately 1,000 such complaints are received annually by the Ontario Ministry of the Environment, (Impacts of Rural Land Division on Agriculture in Ontario, G. Penfold, University of Guelph). There can also be indirect impacts resulting from residential-farm conflicts such as higher farmland costs, increased use and demand for services, difficulties in moving farm vehicles on rural roads, shift in political power due to increases in the number of non-farm rural residents and loss of farming options. These residential/agricultural problems are expected to get worse as the number to non-farm residences increases. An example of the significant demand for rural residences is illustrated in the severance applications commented upon by the Ministry of Agriculture and Food. In Ontario in 1979 there were 5,433 such applications, in 1987 (10,515) and in 1989 there were 14,049 (G. Penfold, University of Guelph). Statistics over the same period in Hamilton-Wentworth for the three predominately rural area municipalities (Ancaster, Flamborough and Glanbrook) indicate increases in total application from 170 in 1980, to 352 in 1987 and 493 in 1989 (State of the Environment Report - 1990). While some of these applications are within the urban area, and the totals are influenced by cyclical trends, the number of applications in the rural area has steadily increased.

3.3 Implications of Land Use Conflicts

The farmer is experiencing problems related to these land use conflicts. For example, the proximity of residential uses can restrict the expansion of farm operations, result in vandalism to farm buildings, crops and livestock, and altered farming practices to accommodate neighbours' demands. Nearby quarries can affect farming through dust emissions interfering with crops and noise affecting livestock; golf courses can lower water tables and add chemicals/fertilizers to the surface and ground water regimes on which some forms of farming rely, industrial/commercial operations can add noise, pollution, and congestion to the rural environment. As individual components or in concert with other impacts resulting in cumulative affects, rural land use conflicts and competition have created real impediments to agriculture.

The most serious implication of rural land use conflict is the continual loss of agricultural land to non-agricultural uses. Rural residential development and urban expansion are two of the principle factors in this depletion of land; but the aggregate industry is having and has the potential for substantial impacts on agriculture. Economic fluctuations control this industry but presently the 10 companies operating in Hamilton-Wentworth extract annually (under license), about four and a half million tonnes of sand, gravel and limestone. Identified sand and gravel resources cover 3,400 acres concentrated mainly in the Town of Flamborough. An equivalent amount of land, also in Flamborough, has been indicated as prime areas for stone aggregates (State of the Environment Report -1990 and Ministry of Natural Resources). While all of these lands are not prime farmland, a good portion is being farmed or has the potential for agriculture. Consequently, as short term

competition for rural land exists, conflict between aggregate and agricultural operations exist and if quarries are not properly rehabilitated, the agricultural land base can be lost in the long term.

In addition to the aggregate/agricultural situation, other conflicts have resulted in increased costs for farmers which have implications on agricultural viability. Vandalism, altered farming practices, high land costs, restrictions on expansions, costly fencing and maintenance, increased taxes and reduced use of pesticides/fertilizers for environmental reasons are all expenses the farmer must absorb because of competing rural land uses.

The changing rural land use and ownership patterns brought about by increased pressures for alternate uses, has resulted in area farmers renting much of the land they farm. It is not uncommon to have home farms of only 100 acres, within an overall farm operation consisting of several additional hundreds of acres. The consequences of this type of "rental" farming and the associated short term leases can be farmland mismanagement and a general degradation of the agricultural land base. Farmers are not willing or able to put substantial investment (money or time) into land which may be developed in a few years, or subject to short-term lease/rental agreements. The tendency is to overuse the land to make it as productive as possible in the short term. This will have devastating long term impacts and cause further reduction or loss of agricultural capability.

4. Environmental Issues

4.1 Agricultural Practices

Generally farming practices have resulted from pressures on farmers to increase productivity. Farmers can now feed 90 people from the same area of land that could feed 5 at the turn of the century (Farmland Under Seige - Soil Degradation). Increased productivity is usually based on intensive farming techniques utilizing mechanization, large quantities of fertilizer and pesticide and monoculture (one crop agriculture). Farmers often have had no choice but to use these high energy use non-sustainable practices to remain competitive within the market.

Some environmentally sound and sustainable farming practices are being used in the region but many operations of a large, specialized nature or those facing the squeeze of low prices and high input costs, are causing serious and growing environmental problems. Some of the specific impacts resulting from poor farm practices are:

- Soil degradation - erosion (water, wind) increased salinity, compaction, loss of organic matter
- Deterioration of water quality - surface water contamination from increased sediment and chemical runoff
- Effects of pesticides and fertilizers on wildlife - sediments and toxic chemicals are carried into rivers, lakes, natural areas which destroy habitat and wildlife.

These impacts are significant and extend far beyond farm limits. The costs associated with soil degradation alone costs farmers approximately \$1.3 billion annually in Canada. In southern Ontario these costs are estimated at \$91 million per year. Soil erosion in southwestern Ontario has resulted in a 30% -40% reduction in corn yields. In addition water run-off and surface erosion from farm fields washes pesticides and fertilizers into private and municipal water supplies. The amount of chemical fertilizers and herbicides

used in Canada has increased dramatically to the point where in 1986, these agents were applied to 50% of all improved land in Canada, up from 16% (fertilizers) in 1971 and 20% (herbicides) 1971, (Farmland Under Seige - Soil Degradation).

However in Hamilton-Wentworth a portion of this trend appears to be reversing since the total estimated agricultural herbicide and insecticide use has decreased substantially from 112,690 kilograms in 1983 to 69,300 kilograms in 1988, (State of the Environment Report - 1990). This downward trend must continue to ensure adequate environmental protection.

4.2 Conservation

Decreased use of chemicals in farming activities along with sound conservation practices are needed to protect the landbase and prevent further deterioration of both surface and ground water quality. Other remedial measures are available and some of the following are currently being implemented:

- tillage reduction, "low-till" agriculture eg. leaving corn stubble over the winter
- increased diversity of livestock on individual farms
- more fall cover crops
- improved manure storage and spreading practices
- crop rotation
- planting of windbreaks and hedgerows
- grassed waterways in fields
- streambank stabilization
- use of animal or green manure
- decreased free access of cattle to streams
- organic or bio-dynamic farming techniques
- agroforestry (incorporation of forestry and trees into farming systems)

In order to accomplish these conservation measures a number of programs have been established to assist agricultural operations. Among the programs are: Food Systems 2002 a pesticide reduction scheme with at target of 50% reduction over 15 years; Pesticide Safety Courses a program to educate farmers in handling, application, and storage of pesticides (350 clients in Hamilton-Wentworth completed this course); Ontario Soil Conservation and Environmental Protection Assistance Program providing \$5.5 million annually (1986-1990) in grants for soil conservation, manure storage, milk-house washwater disposal and pesticide handling facilities (94 farmers in this Region are applicants) and Land Stewardship Program a program ending in 1990 with money available for conservation practices (84 Regional applicants) (State of the Environment Report -1990).

4.3 Sustainable Agriculture

Not only are successful conservation measures needed to preserve agricultural land and productivity but agriculture must become more sustainable. Sustainable Agriculture can be a set of farming practices that work with natural processes to conserve resources, minimize waste and environmental pollution and promote agro-ecosystem resilience, self-regulation, evolution and sustained production. These activities may involve conversions from monocultural activities to diverse organic farming or permaculture, dramatic changes

in the financial structure of farming and marketing of farm produce, increased emphasis on family farming and overall conservation practices. A possible major contributor to soil conservation and sustainability in agriculture is ecological agriculture; a food production system which treats the soil as a renewable resource. It involves sound management practices to avoid soil degradation, and enhancement techniques which nourish and maintain the health of the soil. Methods such as crop rotation, legumes planting, low tillage and biological pest control are utilized. Since this farming system's beginnings in West Germany, other groups in Canada such as the Ontario Ecological Farmer's Association, Christian Farmer's Federation and the Canadian Organic Growers organizations have been formed to promote various types of ecological agriculture.

This is only one of the critical areas of new agricultural forms which along with the other components of sustainability must be investigated to reach toward long-term stability for agriculture in this country.

5. Viability in Farming

5.1 Problems in Agriculture

Traditionally the farming community has been fiercely independent and resilient in facing numerous crisis. In the 1980's and 1990's new challenges are approaching insurmountable levels. Farmers are being forced to address increasingly complex problems related to:

- **Financing a farm operation (Input Costs/Commodity Prices)**
 - in 1960 food bills accounted for 21.6% of a family's disposable income compared to 12% in 1990. On average a Canadian spends \$1650 annually on food, of which only \$110 goes to the farmer.
 - between 1978 and 1983 the cost of production rose 49% while commodity prices only increased by 32% (Brant News, April 24, 1990)
 - in 1990 Ontario farm incomes were expected to drop by 6% (counting inflation) (Toronto Star - Poverty - April 29, 1990)
 - land taxes, price of land, interest rates have escalated
 - costs of inputs such as farm implements, seed, fertilizer, pesticides, veterinarian and other farm services have increased substantially.
- **Conflict between Productivity and Environmental Concerns**
 - maintaining or increasing productivity has meant intensification of the farming operation, increased land area at the expense of woodlots, wetlands and erosion susceptible areas and greater use of fertilizers and pesticides, which all can result in environmental degradation.
- **Government Farm Policies**
 - overlapping jurisdictions have created problems where federal, provincial and local agencies have responsibilities in various areas
 - the unco-ordinated nature of some government intervention programs creates confusion and resentment.
- **Trends Toward Part Time Farming and Farmers Selling their Farms**
 - low commodity prices, high financing rates and low profits have forced many farmers to seek off farm employment to supplement farm incomes

- high land prices paid by speculators and developers have resulted in the loss of farms and farmers
- farming is no longer an attractive occupation for farm children who are leaving the farm for permanent off-farm employment. This deprives the farmer of a source of farm labour as well as affecting a long standing farming tradition of passing the farm on to the next generation.
- **Marketing Boards**
 - these boards have been beneficial in some areas and created constraints in others, the supply management boards (dairy, eggs and poultry) which control prices and supply may have to be adjusted along the lines of the hog marketing board which helps farmers negotiate sales, develop export markets and establish systems for grading and standardization. This is necessary because it is contended by some groups that Canadians pay a high price for supply management, (25 - 50% more for chicken, twice the world price for milk and 7 cents on a dozen eggs to subsidize a surplus), (Hamilton Spectator - Nov. 15, 1990).

5.2 Family Farm

With all the problems in farming, an essential cornerstone of farming in this country, the "Family Farm" is being threatened, and the bottom line appears to be economics. Farmers are being paid inflated prices for their farmland and their children are leaving the farm for better paying jobs away from the farm. This trend has been prevalent in Hamilton-Wentworth where rural farm population has declined from 4,940 in 1981 to 4,235 in 1986, a drop of -14.27% and the number of farms has decreased by -10.3% from 1,553 (1981) to 1,393 (1986) (State of the Environment Report - 1990). This general decline also occurred nationally: between 1981 and 1986 the percentage of Canadian farm operators under the age of 35 decreased from 21% to 19%. In addition, the total number of farmers was reduced by 8% and the average value of capital per farm dropped from \$324,000 to \$273,000. Other indicators of the eroded interest in farming appear in other areas which have implication on farming's future. In North America enrolment in agricultural programs is now about 50% of what it was 10 years ago. Closer to home the University of Guelph's agricultural degree programs enrolment since the early 1980's has plunged from 1534 to a 1989 total of about 825. The 4-H Club, a youth group with its roots in the soil of Canadian farmland has experienced a membership decline from 70,000 (early 1970's) to 46,000 in 1989, (The New Farmers, Toronto Star - Feb. 3, 1989).

The rash of negative statistics do not necessarily mean that family farming will not continue. People have to eat and that has given hope to the few young farmers and student agriculturalists who are willing to hang onto the rural lifestyle. Many young farmers are studying agriculture at university before taking over the family operation and are better prepared to adapt and cope with the rapidly changing agricultural technologies, increased emphasis on nutrition and growing environmental concerns. The new generation of agriculturalist is moving away from traditional farming and specializing in areas of farm consulting, environmental management, food security and sustainable development. But farming remains in "their blood" and as part of that tradition there should be a place for the family farm.

5.3 Free Trade and International Trade

Influences on agriculture from beyond our borders are also important. International Trade and the Free Trade Agreement (F.T.A.) with the United States are major contributing factors in the future of agriculture in Canada. Since the initiation of the F.T.A. in January 1989 there has been mixed reaction to the advantages and disadvantages being experienced in the agricultural community. In support of F.T.A., shipments of Canadian farm and food products to the U.S. rose by 13% in 1989 and by 23% in 1990. Exports to the U.S. now stand at more than \$4 billion a year. As a direct result of the Canada-U.S. deal, 15 new food processing plants have been opened, 54 existing facilities have expanded and 26 others are undergoing major equipment upgrades, (Hamilton Spectator - March, 1991). In addition a dispute panel set up under the trade deal has already issued a decision favourable to Canadian pork producers, which may be a first indication that the built in dispute mechanism will be fair and workable.

However, many sectors of the agricultural economy are still sceptical about free trade and firmly believe that the agreement will create more losers than winners. Unfortunately, the F.T.A. has not been in place long enough to accurately evaluate all of its impacts. Certainly negative affects are expected among the fruit and vegetable growers, especially the grape growers in the Niagara Peninsula (including Hamilton-Wentworth).

Agriculture in this Region is not only affected by free trade but also through international trade influences, especially since Canada was the 4th largest exporter of agricultural products in 1987 (\$8.7 billion or 5.8% of world exports), (GATT - The Crunch Comes - David Crane, Toronto Star). World markets, prices and supplies of various commodities can impact on Canadian producers right down to the small vegetable grower in Hamilton-Wentworth. International trade to a large degree is based on complex systems of subsidies and trade barriers. These subsidies in major industrial countries (such as Canada) are significant. Worldwide the burden of agricultural support policies between 1984-86 averaged \$185 billion (U.S.) annually, more than six times what these industrial countries provide each year for aid to developing countries. Farmers in the European Community are highly subsidized and in the U.S. assistance varies but the highest level of support generally goes to the dairy sector where in 1986 to support amounted to \$1,400 per cow, (D. Crane - Toronto Star). Attempts to deregulate and control subsidies at the international level have most recently been focused through the GATT (General Agreement on Tariffs and Trade) talks which seem to be stalled and there appear to be few signs of progress or optimistic views on this process. Added to this mixture of FTA and GATT are preliminary discussions on a three-way continental trade agreement to include Mexico. This possibility has many agriculturalists foreseeing a tidal wave of cheap imported produce from Mexico and the U.S. entering Canada which could eliminate thousands of jobs in farming and the food processing industry.

5.4 Improving Viability

The issue of farm viability is one of the most complex factors in agriculture, and the critical question is how can the overall viability of farming operations be increased and secured over the long term. Are the mechanisms in place to succeed in improving viability or are innovations necessary? It appears that farm subsidies may not be the answer. In many cases subsidies are inadequate or misdirected and do not meet the needs of the farmer. The key element in the viability scenario is the farmer. A common theme within the agricultural community is "save the farmer and he will save the land". The farmer must be returned to a "supportive environment" in which he is paid an

appropriate amount for his produce and is able to make a respectable income from the farm operation. Under these circumstances the farmer can then concentrate on improving farm practices to offset environmental problems and investigate other agricultural forms for diversification and security. The opportunities for improving viability are extensive and a few are listed as follows:

- higher prices for farm commodities;
- improved protection (subsidies/trade barriers) from the impacts of international and free trade;
- strict adherence to urban boundaries, increased densities in urban areas and limited expansion into agricultural areas to reduce the speculative pressures on the farming community around urban areas;
- conflicting approaches involve more or less restrictive severance policies; more restrictive means reduced rural land use conflict and greater stability in the agricultural area while less restrictive means an alternative income source for the farmer;
- improved financing arrangements for farmers (reduced taxes and interest rates);
- better farm management practices to limit soil degradation and increase production;

There are a series of ideas concerning this issue which will be more thoroughly discussed in Section 7 - Innovations/Initiatives in Agricultural, of this report, but details regarding three other areas should be outlined. These areas involve other farm income sources, renting farmland and increased local market.

In many cases farm incomes must be augmented to allow the farmer to survive. In Canada more than half of all farmers earn 50% or more of their income from sources other than agriculture, (The Tourist Harvest - The Globe and Mail - July 27, 1988). The type of occupation varies dramatically depending on the individual situation. A growing number of farmers are opening their homes to tourists. Bed and breakfast accommodations on farms, farm tours and extended stays on farms are becoming more popular with the urban vacationers who are attracted by the tranquil rural setting and a chance to learn more about farming at a relatively low price. Farm vacation locations in Ontario now total 95 (The Globe and Mail) and indications are that this figure will increase in the future. Tourism provides income for the farmer but also a reciprocal outcome is the increased awareness of farm issues that the travellers take back to the urban centres.

Another alternative, at least for the younger farmer is the option of leasing land in order to get into farming. The amount of capital needed to start a farm prevents a number of able young people from entering the industry. In some instances the farmer rents everything needed to farm including buildings and equipment. However ownership has been a farming tradition and the ingrained prejudice against tenant farmers must be changed if this approach to "start-up" farming is to succeed. The leasing of land can offset the high costs of starting a farm operation but to be viable long-term leases are necessary. Innovative leasing arrangements similar to those existing in Europe should be adopted to the Canadian situation. More elaborate leasing laws like those in Europe enable farmers to have lease-holding rights for virtually all their farming lives and these rights can be passed on to children interested in continuing on the farm. In Britain, laws governing farm leases make it difficult to evict the tenant farmer and encourage the transition of farms to the next generation. Long-term, secure leases eliminate the expense of purchasing land and provide security, permitting the farmer to incorporate proper farm management techniques through crop rotation, land and building improvements and good

soil stewardship. With a degree of security and lower input costs the young farmer has a better chance to begin farming and establish the basis for a long term, viable operation.

Farm viability is dependant upon the existence of a market and generally the closer the market the better. In Hamilton-Wentworth it may be appropriate to increase the local opportunities for selling farm produce by establishing more, suitably located farmers markets. These markets could be spread throughout the Region, should be easily accessible and encouraged to sell produce from area farmers (or operated by area farmers and their families). In addition to these small markets, another potential source for utilization of local farm produce is a Food and Beverage Park (ranging from 8 to 50 acres) being investigated by the Region of Hamilton-Wentworth. The Region is actively pursuing this idea and has had a consultant prepare a feasibility study and is preparing a marketing strategy to promote this new concept. Part of Canada's \$43 billion food processing industry, (Research or Perish Food Industry Told - Toronto Star - Jan. 14, 1991) is already located in Hamilton-Wentworth with 60 food and beverage companies situated within regional boundaries. Fifty percent of these firms (30) process cereal/bakery goods, there are 11 meat/fish companies, 4 fruit and vegetable, 4 confection/sugar, 3 dairy processors and 8 other firms. A wide variety of processing companies (288) are also located in neighbouring regions such as Waterloo, Niagara, Halton and Brant (Feasibility of a Food and Beverage Park - Pest, Marwick, Stevenson and Kellogg - Nov. 1990). The Food and Beverage Park concept could attract new businesses, provide relocation options and in concert with existing food processing firms may enhance market opportunities for local producers.

6. Trends/Direction in Agriculture

6.1 Changes in Agriculture in Hamilton-Wentworth

While Agriculture is an important economic activity in this Region, as illustrated by annual farm cash receipts of \$113.8 million, capital value of land, buildings, equipment and livestock of \$476 million and yearly expenditures totalling \$94 million. Nevertheless, agriculture is changing. Between 1981 and 1986 alone, the area of census farms in Hamilton-Wentworth declined from 158,519 acres to 145,083 acres (-8.48%). The number of farms declined from approximately 1,553 to 1,393 (-10.3%), and the total farm population declined from 4,940 to 4,235 persons. In addition average farm size has increased slightly from 96 ac. in 1976 to 104 ac. in 1986. The loss of farmland has been through urban development, rural settlement expansion, competing rural land uses and residential development in the rural area, (Ministry of Agriculture and Food, State of the Environment Report - 1990).

On the remaining farmland, there have been shifts in production with fluctuations in vegetable acreages from 10,000 ac. in 1981 to 5,600 in 1986 to 7,000 in 1989, and increases in soya beans from 3,800 ac. in 1981 to 8,000 ac in 1989. However, other commodities have encountered drops in acreages. Grain corn from 31,000 ac (1981) to 24,000 ac (1989), oats from 6,800 (1986) to 3,800 (1989); fruit from 4,500 (1981) to 4,200 (1989) and finally dairy production has decreased from milk production totals of 30,000,000 kilolitres (1976) to 26,500,000 kilolitres (1986). Present agricultural production (cash receipts) in this Region is distributed among the various commodities as follows: floriculture/nursery account for 25%, poultry 21.8%, fruit and vegetables 17%, dairy 11.7% livestock 11% and other commodities 13.5%, (County at a Glance, 1989, H-W, OMAF).

Changes in agriculture are not limited to acreages or production figures. The rural land ownership pattern is also undergoing change and in Hamilton-Wentworth 50% of farmland is rented by area farmers, (H-W Federation of Agriculture). With speculative and absentee landlords in control of much of the farmland there is increased pressure for land prices to rise and the usual short term lease arrangements can result in poor land management practices, and thus a general degradation of the agricultural land base. These pressures on farmers along with what appear to be cheap food policies (Cost of Food related to Disposable Incomes -Canada 15%, Ireland 27%, U.K. 20%, Sweden 21%), and low return for the farmer (eg. out of the \$1.29 consumer price for canned apple juice only 0.21¢ (16%) is paid to the farmer) (H-W Federation of Agriculture); are forcing a number of area farmers seek part time work outside of farming or to get out of farming altogether. The result in Hamilton-Wentworth and southern Ontario is a changing rural land use and ownership pattern, a marked decline in agricultural population (and to a certain extent production) and an overall increase in rural population from 36,110 in 1981 to 37,500 in 1986 (+3.85%),(State of the Environment Report - 1990).

6.2 Specialization and Other Trends

Since the 1940's farms in Canada and this region have become larger, more specialized, more mechanized and more highly capitalized. In most cases these changes relate to improved productivity. This is especially true when it comes to specialization. This monoculture approach involves concentration on one type of farming (a single crop or type of livestock). Mixed farming which dominated agriculture until about thirty years ago has been replaced by specialization in dairying, beef, hogs, poultry, horticulture and cash crops. The increased productivity brought on with specialization has had some negative impacts. Soil degradation through overuse, extensive application and misuse of fertilizers and pesticides which can cause environmental problems, over production of certain commodities and susceptibility to market/price fluctuation are a few of the problems generally associated with specialization.

In addition to increased specialization other trends in agriculture have been recognized:

- decline in the number of farms and farmers and total farm area
- increase in the average farm size
- reduction in the number of "family farms"
- increased leasing of land
- higher number of farmers with off-farm work
- more rural land transferred into corporate non-farm ownership
- the diversity of rural land use is increasing.

Also, many indirect trends related to the rural area are affecting agriculture. Changes in the nature of the rural area are occurring. While farm population was once 50% of the provincial total, it now stands at less than 4%, (A Framework to Explore Development Trends and Issues in Rural Ontario, University of Guelph, Aug. 25, 1990). Since the 1970's there has been a large influx of non-farm population into the rural areas surrounding our urban concentrations. This new population has resulted in a shift in the traditional power bases/political influence from farmer to the new residents, the creation of bedroom communities, the loss of farmland, increased land use conflicts, and the loss of rural community identity which has been a traditional and important element of the farming lifestyle.

6.3 Consumption Trends

Farming, which is essentially the business of producing food, is dependent on consumer demand for the various agricultural commodities. Over the past few years demographic changes have occurred in both rural and urban areas. These changes which include slower population growth, smaller households and an aging population, have impacts on the amount as well as types of food that are consumed. Today's consumer is demanding:

- healthier food
 - more white meat
 - less and leaner red meat
 - increase in lower fat milk and milk products
 - increased fruit and vegetable consumption
- environmentally friendly foods
 - organic foods are becoming more popular
 - drug free meats
- higher quality, freshness and variety
 - improved distribution facilities
 - proximity to markets becomes important
 - research to find new foods
- demand for improved food safety
 - pressures on governments and the farmer
- increased demand for small serving, healthy, ready to serve new food products
 - need for product innovations
- declining consumption of butter, margarine and bread
 - new low fat or fat substitute products
- changing production methods
 - "animal friendly" foods (free range poultry, non-confinement veal)

(Consumer Food Trends for the 1990's - OMAF)

As consumption trends change the producer must react appropriately or face substantial loss of the product's market. Wherever possible the farmers will have to try to anticipate these trends and adapt by upgrading quality, through diversification, production innovations, marketing initiatives and other approaches.

6.4 Food Security

Buying cheaper groceries from the United States (and eventually food products from Mexico) and relying on imported food may be a trend today but it will last only as long as supplies are available. Food imports are based on the transportation of produce from source to market and that transport is directly related to fuel supplies. An oil shortage or disruption could significantly affect imports. Foreign food supplies are also subject to natural disasters (drought, flooding), government policies, international events (wars, revolutions) and other factors which can disrupt imports and increase prices. The lack

of secure food sources can be a major concern and many government officials are supporting greater self-sufficiency in food production for this province. Ontario is a net importer of food and has increasingly become dependent on food imports that can be grown within this province. In 1986, agricultural and food imports surpassed exports in Ontario by \$1.3 billion. The importation of certain produce (mainly fruits and vegetables) is inevitable, but two-thirds of Canada's imports consist of foods that are already grown commercially in this country, (Farmland Under Seige). Ingenuity, marketing strategies and buy Canadian approaches are needed to allow farmers to meet the challenge of imports and decrease the reliance on foreign sources.

6.5 Attitudes

The attitude of farmers has become a critical component of the agricultural issue. How the farmer feels about his occupation is important and as in any work, job satisfaction can influence productivity. The current lack of profits, security and confidence in farming, along with financial pressures, public criticisms (especially regarding environmental concerns) have disillusioned many farmers. Consequently, offers to buy their farms have become more appealing to farmers and considerable numbers have been enticed out of farming. In addition, the many hardships of farming have changed attitudes about agriculture to the point where a recent poll indicated that almost 75% of the farmers surveyed would not encourage their children to go into farming (Hamilton Spectator - Oct. 16, 1990).

Furthermore, the general public has developed certain attitudes about farmers and farming (which can lend to an unsupportive environment for agriculture). These have been influenced to a large degree by a lack of public education about the hardships of farming, extensive criticisms regarding environmental degradation and complaints about farm practices that impact rural residential uses.

However, some people are becoming more aware of the advantages and benefit of the rural area not only for food production but as a dynamic component of the regional and provincial landscape. As the "custodian" of the rural landscape, farmers efforts should be recognized and supported to allow them to continue in an activity which is vital to the well being of the people of this province.

7. Innovations/Initiative in Agriculture

7.1 Land Stewardship

As indicated earlier in this paper the world's population lives on food grown on a very small and shrinking portion of the earth's surface. Prime farm land is a non-renewable resource and is being converted to other non-agricultural uses at an alarming rate. Between 1981-1986 approximately 55,200 ha. (136,400 acres) of rural land were urbanized by 70 Canadian cities with populations over 25,000. Fifty-nine percent of this converted land area consisted of prime agricultural land, (A State of the Environment Fact Sheet - Environment Canada - 1989). In Ontario from 1981 to 1986 10 ha. (24 acres) of prime foodland was lost every hour and the 1986 Census indicates that 1,502,002 acres of land has gone out of farming in Ontario since 1976, (Farmland Under Seige - Urbanization).

Obviously measures must be undertaken to protect and preserve the agricultural land base if there is to be any hope to feed future generations of Canadians. In addition,

conservation practices to maintain and improve the remaining farmland are also important. One such attempt at conservation is the Ontario Land Stewardship program. Originally begun in 1987 this three year, \$40 million program provided financial incentives for first-time adoption of conservation farming practices on Ontario farmland. Under the program grants are available for soil conservation (grassed waterways, cover crops, water diversions, bank stabilization) and environmental protection (manure storage and handling systems, milk parlour facilities and pesticide-handling facilities). A major aspect of this program is that it has a farmer-led administration and local land stewardship committees to review and approve applications for funding. All of the budgeted funds have been committed and a number of local farmers have applied. This program ended in 1990.

However Land Stewardship II, a \$38 million program is now underway and extends until March 1994, (OMAF). This is a continuing commitment on behalf of the government of Ontario to planned conservation systems and environmental protection measures by farmers.

7.2 Purchased Development Rights

The "Purchased Development Rights" (PDR) program is a process which has been in place in the United States for a number of years. State farm protection programs have escalated in the past decade. Today there are nine eastern states that have funded development rights programs. Under the Purchased Development Rights system a government pays farmers annual fees to keep their land in production. Generally, a set of eligibility criteria must be met by the farmer and in some states the programs limit the purchase of these rights to critical areas surrounding urban areas that are subject to severe development pressures. Part of the criteria may be based on crop yield, location of the farm in an agricultural district of a certain size and so on. In the U.S. funding for development rights purchases usually is generated through state or local bond issues, and the funding is essential since the national average cost of purchased development rights is \$1,500 per acre. These payments can be up front cash fees or in a Maryland county twice yearly interest payments are made to the farmer followed by a lump sum at the end of 30 years, (Planning - APA - Sept. 1990).

In order to offset a contention that the PDR is a lucrative option for gentlemen or part-time farmers, a 1988 study found that the vast majority of farmers who sold development rights were full-time farmers (Planning - APA - Sept. 1990). Also most participating farmers use the payments to reinvest in their farm operations. The program generally has had a stabilizing influence on agriculture and enables the farmer to realize development equity without selling the land.

Some of the programs use a point system to counteract unpredictable or unsatisfactory development rights appraisal values. Under this system bonus points are awarded for large farms with fertile soil, good soil conservation practices, farms located near development, and farms operated by full-time farmers. This results in higher prices for the farmland governments want most to preserve.

Another American approach worth mentioning is the Community Land Trust practised in New England and New York. This system is similar to a purchased development right but is community based. Much of its success is due to special property tax regulations that allow farmers a tax credit for land they place under the trust.

Many farmers in Canada see these types of approaches as a viable method to keep farmers on the land. In the Niagara fruit farming area where losses range from \$24 per acre for pears, \$306 an acre for sweet cherries and \$374 an acre for peaches (Hamilton Spectator, December 10, 1990), government purchase of annual leases on farmland or PDR purchases may be the only way to retain the Niagara fruit growing industry. This is especially relevant when the impacts of free trade and international trade developments are taken into consideration.

7.3 Publicity (Buy Ontario or Local Products)

In order to offset a growing dependence on foreign food sources an emphasis should be placed on buying local produce. By ignoring where our food comes from and the importance of producing as much of it as we can, we are harming the local agricultural economy. New ideas, concepts and promotions should be developed to bolster the sale of local farm products. This practice applies to this region and also throughout the country. A former president of the Hamilton-Wentworth Federation of Agriculture during a visit to Ottawa in 1984 discovered that parliamentary restaurants served French house wines but after extensive lobbying efforts he was able to force a switch to Canadian wines. A similar approach was successful in getting Ontario Government cafeterias to offer Canadian juice products instead of American citrus drinks only, (Don't Rely on Imported Foods - Hamilton Spectator - Jan. 29, 1990). A broad-based campaign to promote all domestic agricultural products appears to be necessary and here in Hamilton-Wentworth public education regarding the nature, extent and product variety in the local agricultural economy may be effective. Encouragement and promotion of local farm markets, roadside produce sales, pick-your-own operations could also assist in awakening area residents to the bountiful food products available in their own backyard.

7.4 Farm Income Protection Plans

Early in 1991 the federal government announced \$3 billion in farm income protection programs which will begin this year. These systems are designed as permanent, predictable programs that would provide some stability and security and alleviate the need for many of the existing ad hoc programs. Farmers will be registered for revenue insurance or income stabilization to protect against low prices or losses due to natural disasters. Through a complex formula based on each farmer's production history, a premium would be paid by each participant into a fund similar to a crop insurance scheme. Payments from the fund would be based on claims for market losses or production failure due to drought, disease or the natural phenomena. The benefits from this program are available to farmers throughout Canada and it is expected that it would not be influenced by the General Agreement on Tariffs and Trade discussions.

7.5 Subsidies

Farm subsidies have been in existence for a long time. Most countries provide some form of subsidy to their farmers to varying degrees. In Canada, federal government direct subsidies to farmers amount to about \$2.8 billion a year. Additional indirect support programmes such as general support services, market price support, and reduction of input costs, total approximately \$6.2 billion dollars. However, these support programmes do not place money in the hands of farmers but pay for reduced rail rates, tax rebates, research, and price supports (Ontario Federation of Agriculture). These subsidies are necessary to assist agricultural operations where the average farm requires an initial

investment of \$500,000 and the returns on that investment varies from only 4 to 10% (Stephen J. Cook - Editor - Dundas Star Journal). Some examples of the types of subsidies are the Special Canadian Grains Program - payments of \$850 million in 1989; Western Grain Stabilization Act - payments of \$889 million in 1987; Agricultural Stabilization Act - payments of \$352 million in 1988; National Tripartite Stabilization Program - payments of \$183 million in 1988 and the Crop Insurance Program - payments of \$130 million in 1988, (Farmer's Safety Nets Hard on Taxpayers - The Globe and Mail - Dec. 11, 1990). Also, there are federal and provincial programs which provide crop insurance or other forms of financial assistance to farmers.

The concept of subsidies has come under attack recently at the international level during the GATT discussions, where attempts are being made to reduce or wherever possible, eliminate this form of assistance. In 1990 Canada conditionally offered to reduce farm subsidies over a ten year period in an effort to negotiate a substantial agricultural trade reform package. This is only one aspect of the comprehensive proposal but may indicate a possible trend away from the annual payment of farm subsidies. If subsidies are not the answer to the financial crisis in farming, other alternatives must be assessed and reviewed if the agricultural industry is to survive.

7.6 Ecological Farming Systems

As in many other areas, the growing concern about the environment has reached the agricultural industry throughout Canada, Ontario and this region. Issues such as soil degradation, overuse of fertilizer and pesticides, runoff from agricultural operations and water quality problems are coming to the forefront. Two attempts at resolving these issues are the concepts of organic farming and permaculture.

Organic farming is an approach which eliminates the use of chemicals in the food production process. In their place composted manure, mechanical weeder and crop rotation/soil conservation practices are utilized, resulting in an ecologically sound farming operation. In recent years there has been a 50% annual growth rate in organic farming and this dramatic surge has resulted in more than 10,000 Ha (25,000 acres) of certified organic operations in Ontario in 1989. The North American total (in 1989), should reach 140,000 Ha (350,000 acres), (Toronto Star, July 14, 1989). While this type of farming may not be as productive as other agriculture, the recent consumer demands for healthier, safer foods may raise the popularity and profitability of organic farming in the future.

The second approach is called permaculture (formed from the two words **"permanent"** and **"agriculture"**). "Permaculture is the conscious design and maintenance of agriculturally productive ecosystems which have the diversity, stability and resilience of natural ecosystems." (Permaculture, Bill Mollison, 1990). The underlying philosophy is essentially working with, rather than against nature and involves moving away from the single product/monoculture farming operation which predominate today. This concept would combine livestock, crops, forestry and other basic types of agriculture together on single farm operations and is a dramatic change from the existing types of agriculture in this country. While yields are likely to be lower in a permaculture ecosystem than in a monoculture operation, the reduction may be somewhat offset by the benefits of soil conservation, no cost for chemical agents and maximization of all available nutrient resources in this multiple use system.

Canadian farmers may not yet be in a position to convert to this form of agriculture. The commitments in time, energy and money in current practices seem to be too vast. However, the long term benefits of permaculture may not be able to be resisted and

gradual changes by adopting genetic and crop diversity, conservation and recycling practices, organic farming techniques and other aspects of permaculture, to modern farming operations could result in a new type of agriculture more closely attuned to the valuable principles of both organic farming and permaculture. Certainly the adaptability of various aspects of these approaches are warranted if our food producing capabilities are to be maintained or improved.

8. Conclusion

8.1 Sustainability Issues

It would appear that many current agricultural practices are not sustainable in the long run. Specialization and monoculture operations which are the norm in modern farming tend to limit genetic variety, overuse the land, discourage conservation practices and in the long term could lead to depletion of the land which is a valuable non-renewable resource. The process of farm subsidies and heavy reliance on foreign food supplies are further examples of non-sustainable practices which have and are affecting farming.

Agricultural sustainability may be the key element in the ability of future generations to feed themselves. Unfortunately a number of issues directly and indirectly related to the replenishment of agriculture are causing problems in today's farming communities. Some of these key issues involve:

- loss of prime agricultural land
- increased rural land use competition/conflicts
- farm productivity vs environmental concerns
- attitudes of and towards farmers
- loss of family farm operations
- limited farm viability
- financial uncertainties for long term agriculture
- emphasis on production
- contamination of water supplies due partially to farming practices

These issues must be addressed and solutions found if the farming industry is to survive in this country.

8.2 Questions, Options, Directions

Probably the two major questions to be answered regarding agriculture are: how can agriculture become sustainable and how can farming regain the viability it once experienced? Due to the complex nature of food production regionally, provincially, nationally and internationally, these questions are difficult to address. However, there are options and directions to explore to improve various aspects of farming. A brief list of potential options follows:

- Rural Land Use
 - redirect growth away from prime agricultural lands
 - stronger foodland preservation policies
 - promotion of new settlement patterns to protect farmlands
 - strict adherence to urban boundaries to limit speculation in the urban fringe area

- **Agricultural Practices**
 - promote conservation practices such as crop rotation, tillage reduction, streambank stabilization, tree planting (windbreaks, hedgerows) to prevent soil degradation
 - promote fertilizer and pesticide programs that reduce use as well as require proper application techniques
- **Farm Viability**
 - improvement in the type and appropriate distribution of farm subsidies
 - incentives for family farm operations
 - improved farm financing
 - higher food prices
 - improvements in free trade and international trade for the benefit of Canadian farmers
 - changes in leasing arrangements to promote stability and long term investment in the land
 - promotional campaigns to buy local produce
 - encourage the establishment of local farmers' markets
 - promote Food & Beverage Parks as a market for local farm products
- **Consumer Trends**
 - adaptation of farming to consumer demands for healthier, fresher, safer, environmentally friendly and specialty foods
- **Other Initiatives**
 - creation of Land Stewardship programs to preserve the land base for agriculture
 - investigate the possibility of Purchased Development Rights as a basis to perpetuate the use of agricultural lands for farming
 - promote Ecological Farming Systems - organic farming and permaculture

These are a few of the more important options and/or challenges facing Canadian farmers now and in the future. If these issues are ignored the ramifications will be felt far beyond the borders of this region. Globally, agriculture has reached a crisis situation. Food production, processing and distribution may become the most important issues of the next century. Consequently the sustainability of our limited agricultural land area and our ability to grow food are vital to our existence and must be addressed now.

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